ROYAL STATISTICAL SOCIETY
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BOROUGH OF PRESTON.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

TO THE

URBAN AND PORT SANITARY AUTHORITY,

YEAR ENDING DECEMBER 31*st*, 1896.

H. O. PILKINGTON,
MEDICAL OFFICER OF HEALTH,
MEDICAL OFFICER TO THE PORT SANITARY AUTHORITY.

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Report of the Medical Officer of Health

TO THE CHAIRMAN AND MEMBERS OF THE URBAN AND PORT SANITARY COMMITTEES.

GENTLEMEN,

Amongst the varied duties of the Medical Officer of Health, as defined by the Local Government Board, is that of each year preparing a Report in which shall be comprised Tabular Statements of sickness and mortality, together with a summary of the action taken by him to improve and to protect the Public Health.

And as each year seems to pass more rapidly than its predecessor, so it would almost appear as if the Report for 1895 had hardly been printed and issued to the Council, before the time had again arrived when the Vital Statistics for 1896 must be collated, and the Report for that year put into preparation.

This Report, which I have now the honour of presenting for your consideration, is satisfactory in as much as it shows that the rate of mortality for the past year is absolutely the lowest hitherto recorded, and that while in the other large towns, and indeed throughout the whole kingdom, the death rate was considerably below the average, the improvement so universally shown elsewhere has at least been maintained and kept pace with in Preston.

And not only has the general rate of mortality throughout the Borough been a low one, but an examination into the different causes of death will show that the Zymotic Diseases—those generally looked upon as preventable, and as being especially influenced and controlled by Sanitary measures—have contributed but a small proportion to the total list of Mortality.

This has been especially the case as regards the Infectious Fevers, whilst Diarrhœa—The Summer Diarrhœa of Infants—was prevalent for a shorter period than has generally been the case in former years.

Throughout the whole twelve months not a single case of Small Pox came under observation, nor was there any reason to suppose that an unreported, or medically unattended case occurred within the Borough. It is true that about the middle of the year certain cases, confined to one locality, were notified by certificate; but upon investigation the patients were found to be young children, no history of Small Pox could be traced, and though the eruption in certain instances bore a strong resemblance to that of modified Small Pox, the general absence of marked constitutional disturbance, and the fact that the disease never attacked an adult, justified the conclusion that the outbreak was one of Chicken Pox.

The eruption and character of Small Pox are so much altered by vaccination, that not unfrequently it becomes a difficult task to decide the nature of a febrile disease attended with a skin eruption, and on this account it is desirable that Medical Practitioners should report suspicious cases, in order that enquiry may be made as to the possibility of there having been any contact with infection, that due precautions may be taken, and that the cases themselves may, for a time at least, be kept under observation.

No harm can result from such a course of procedure, and every care will be taken that no unnecessary inconvenience is entailed upon a household in which a suspicious case may be found to exist.

Occasional cases of Small Pox from time to time cropped up in some of the Lancashire Towns, and as during the first half of the year the disease was raging in epidemic form in the City of Gloucester, a close watch was kept over the Common Lodging Houses, and over the travelling population who visit this town during Whit-week and at other Fair times.

The Gloucester outbreak was one of the most severe of recent years, 149 deaths occurring from Small Pox alone during the first quarter of the year, whilst in the next three months the mortality from this cause was nearly doubled, the deaths numbering 277, being at the rate of 27 per thousand of the population, and making an addition of 231 per cent to the mortality from other causes. Apart from the actual cost entailed by such an amount of sickness and mortality, the complete check given to all proceedings, whether of business or of pleasure, both in the City, in the neighbouring towns, and the surrounding district, implied a pecuniary loss which cannot well be estimated.

I mention these matters because they afford a striking example of the punishment which sooner or later follows a systematic neglect of vaccination, such a neglect as for many years had prevailed in Gloucester, since it was estimated that, prior to the outbreak, no less than 84·7 per cent. of the population were unvaccinated. The Royal Commission appointed to consider the question of vaccination, has, after a sitting extending over something like seven years, at last issued its Report, and this—though perhaps not so emphatic as might have been desired—is altogether in favour of vaccination.

I have no doubt but that the efficient vaccination of all infants, followed by re-vaccination at the age of 10, 12, or 14 years, would have the effect of completely stamping out Small Pox, and placing it amongst the diseases no longer met with. A great deal of the opposition to vaccination would cease if people only knew the conditions of affairs before Jenner's famous discovery, as compared with those of the present day.

And any person of middle age must remember how forty years ago, it was common enough to see persons pitted, scarred, and disfigured with Small Pox—often partially if not completely blind from this cause—whereas, in the present day, such a condition is seldom met with.

Again the comparative immunity enjoyed by Medical Men, Nurses, and Attendants in Small Pox Hospitals, by Soldiers, Post Office Officials, and others who have undergone vaccination and re-vaccination, should convince the most sceptical that by a safe, simple, and painless operation they may obtain, if not an absolute, still a very powerful safeguard against the attacks of the disease, and a certain means of materially reducing its severity should they contract the infection.

From Typhoid or Continued Fever 23 deaths were recorded, as against 22 in the preceding year, or an average of 31 during each of the past six years.

These 23 deaths were distributed over all parts of the town, and gave a mortality rate of 17·55 per cent. of the notified cases of sickness, 131 Certificates having been received of this form of sickness.

In some cases, defective sanitary arrangements about the house accounted for the illness, in others no specific cause could be ascertained, and in no instances was there any common origin for a number of cases.

The greatest amount of sickness occurred in the month of October, and continued until the close of the year, but at no time did it approach an epidemic form.

Although Scarlet Fever may always be expected to be present in such a town as this, it is a matter for congratulation that no outbreak has now occurred for several years, the deaths from this cause during the past year only amounting to 3, all taking place during the latter part of the year, and amongst children under the age of 10 years. During the autumn and early part of winter, Scarlet Fever was present in many of the neighbouring towns of Lancashire and Cheshire, and the fact that it never obtained any decided foothold in Preston, was no doubt in a great measure due to the strict supervision exercised over such cases as were from time to time reported.

Altogether throughout the year, 107 cases of Scarlet Fever came under consideration, and the almost universally benign type of the disease will be recognised, when it is remembered that out of this number only three cases terminated fatally.

Especial attention was given to the Schools situated in those districts in which were present most cases of the disease, and in certain instances advantage was taken of holiday time to thoroughly disinfect the whole building.

From Measles three deaths only occurred, all being children under the age of two years, nor, so far as could be ascertained, was there any great amount of sickness from this cause.

In the south, London and its suburbs suffered somewhat severely for a time from Measles, as did also Plymouth, Portsmouth, Norwich, and Nottingham, whilst in the North-east, Hull, Sunderland, and Gateshead were visited by severe outbreaks.

In the towns nearer to us, Birkenhead, Manchester, Salford, and Oldham had their rates of Zymotic mortality considerably increased from Measles, and this together with the comparative immunity enjoyed by Preston for the past three or four years, rendered the presence, even of an occasional case, a source of some anxiety.

In my last Report, I spoke of the increasing chances of an outbreak, owing to the yearly greater number susceptible to attack, but fortunately during the past year the anticipations of a possible epidemic have in no way been fulfilled.

The deaths of 39 children were caused by Whooping Cough, of which number the majority were infants, while all were under the age of five years. During the early part of the year the town was practically free from this form of infection, only one death being registered during the first four months. The greatest mortality occurred in May, and from this month until the end of the year the disease continued present, a very large proportion of the deaths being registered in Park and Fishwick Wards.

The mortality from Diphtheria was somewhat in excess of that for previous years, a total of 11 deaths being recorded, which gave a mortality percentage of 32·35 to the notified cases of sickness, which latter amounted to 35 in number. Neither the deaths nor cases of sickness were confined to any one district, the mortality being distributed over all the Wards with the exception of Maudland, which escaped without a simple fatal result.

I have omitted dealing with Diarrhœa in its proper place on the Mortality Table, because, although included amongst the Zymotic Diseases, it differs in many respects from the infectious Fevers with which it is there classed.

Altogether 135 deaths were ascribed to this cause, of which number 113 were infants under the age of twelve months, 17 were children between the ages of 1 and 5 years, and the remaining 5, adults or elderly persons. As I have already said the Summer epidemic of Diarrhœa amongst Infants—and it is with this that I have especially to deal—ran a much shorter course than has been the case in former years. And in dealing with this subject, I must of necessity go over ground that has already been well trodden, and must, to some extent at least, repeat what has been often said in former Reports.

The connection between the ground temperature and the invasion of summer Diarrhœa is a matter to which years ago attention was directed by the late Dr. Ballard; and year by year, and for many years past, I have shown that, so far at least as Preston is concerned, his theory was correct, and his deductions have been verified. Between the past year and its predecessors there is however this difference, that the great heat and absence of rainfall which marked the latter half of June, and the beginning of the following month, were not so immediately followed by an increase in the Infantile Diarrhœal Mortality as might, from the experience of former years, have been expected.

It was not before the end of July and the first week of August that any great increase in Diarrhœa was observed, whereas the deep earth temperature—that at a depth of 4 feet—had exceeded 56 degrees before the last week of June. Moreover the reduction in temperature and corresponding cessation of Diarrhœal sickness began at an earlier period than has usually been the case, and as a consequence the Mortality from this cause fell considerably below the average of past years.

Altogether 135 deaths were recorded as having been caused by Diarrhæa, and as regards time 120 of these occurred between the middle of July and the beginning of October, while, as already has been shown, the great majority were either infants or very young children. But low as the Diarrhœal rate of mortality was in comparison with former years, it still stands higher than that of most of the other large towns, Leicester and Salford alone showing a heavier rate, so that it may be assumed that the more favourable climatic conditions experienced here were universally felt, and had the same result throughout the kingdom.

And in dealing with this subject, it is satisfactory to be able again to point to the reduction of mortality in those districts in which Waterclosets and Ashpails have been substituted for the old-fashioned, evil-smelling privy and middenstead. This will at once be appreciated if the plan showing the situation of the Infantile Diarrhœal deaths be read in conjunction with that, upon which is marked the property that of late years has in this manner been altered and improved.

Of the various Wards, Maudland has the lowest Diarrhœal rate of mortality, but this is to some extent explained by the fact that the Birth-rate in this district was below the average, being, indeed, with one exception—that of Christ Church Ward—the lowest in the town.

From the above seven diseases, with which I have now dealt, the rate of mortality amounted to 1·82 per thousand, and was not only very much below the rate from similar causes in previous years, but also was lower than the average of the other large towns, 26 out of 33 shewing Zymotic Death rates considerably in excess of ours.

The deaths from Croup numbered 18, and whilst one less than last year, were above the average of the past six years.

Consumption accounted for 149 deaths, and these, as regards the time, situation, and age period at which they occurred, in no way differed from the experience of former years.

The deaths from Bronchitis were slightly below, as those from Inflammation of the Lungs were above, the mortality from the same causes in the previous year, but both were alike below the average of the past six years.

These two diseases may be classed together, as indeed they are in Table No. 14, and may be taken to represent and include most inflammatory diseases affecting the substance of the Lungs, the Pleura, or membrance investing them and lining the cavity of the chest, and the large and small air tubes up to, but not including, the Larynx.

The next item on the Mortality Table is that which deals with those causes of death which are confined to children, and which are principally met with amongst the very young, many of the deaths being those of Infants who, on account of their having been prematurely born, of imperfect development, or of disease transmitted from their parents, have never had a fair hold of life, and whose births and deaths have been separated by a very short interval of time. The various forms of Debility and Disease which are grouped together under this heading account for 568 deaths, and though in many previous years this number has been exceeded, it still forms considerably more than one-fourth of the total mortality from all combined causes.

As I have said, by far the greatest mortality occurs immediately after birth, so that 481 of these deaths were registered as under the age of twelve months, whilst another 50 were those of children who, having managed to survive the first year of their lives, died before completing the second.

If to the deaths from these causes under one year, there be added those from other diseases, especially Bronchitis and Diarrhœa, (both largely affecting early life, and both often the result of wrong feeding and bad nursing,) it will be found that 759 deaths have been registered under the age of twelve months, or nearly 35 per cent. of the total amount of mortality.

Or again, this sacrifice of Infantile life may be put into another form, and looked at from another position, that is by comparing the deaths under the age of one year, with the registered number of Births.

This is the accepted way of estimating the Infantile mortality, and so it will be seen that during the past year, out of every 1,000 children who were born in Preston, 204 died without seeing the anniversary of their birthday. This is much beyond the average Infantile mortality for the whole kingdom, and is higher than that recorded in any of the other large towns, Salford being the next highest with 200, after which follow Birmingham, Leicester, Wolverhampton, Oldham, Birkenhead, and several other towns with rates which exceed 170 but fall short of 200 to each thousand Births.

Year by year it has been my duty to refer to this loss of child life, to point out what I consider the principal causes, and to suggest the best methods for its abatement. And, having this end in view, I reproduce here the short Abstract of a paper which I read before the Congress of the Sanitary Institute, held at Newcastle in September last :—

INFANTILE MORTALITY OF LARGE TOWNS.

Importance of subject is shown by the fact that during the past ten years the infantile mortality (as estimated by the number of deaths under the age of twelve months to each thousand births), has been for the whole of England and Wales 142, for the large towns 169, and for Preston, always remarkable for its high infantile death rate, not less than 232.

Some of the causes which bring about this loss of infantile life prevail in most of the large manufacturing towns, and it is because they are found in combination in Preston that this town has acquired its unfortunate reputation.

Since the causes are varied and numerous, no one remedy can be devised to meet them all, but each must be met and fought upon its own ground.

First amongst these causes is the employment of female labour in the mills. If an occupation which requires a woman to stand during the greater part of the day, be followed up to within a few days or even hours of the time of parturition, it must act to the detriment of the offspring, and there is less chance of the latter coming into the world, fully grown, well formed, and in good health.

Many deaths take place during the first month, and which are returned as due to premature birth, immaturity, congenital debility, convulsions, and the like, may safely be ascribed to this cause.

The return of the mother to her work within a very short period after confinement, thus depriving the infant of a mother's care, and of the sustenance which nature intended it should have, constitutes even a still greater evil. And with this is connected the nursing out of infants, and their exposure to violent and sudden changes of temperature during their removal night and morning through the cold air of the streets.

But a third and more important cause consists in the very habits of the operative classes themselves, in their ignorance of the first laws of health, and in their blind adherence to customs which have long since been deservedly condemned. In the older manufacturing towns where there is little importation of fresh blood from without, there is a risk in the inter-marriages (often early marriages) amongst persons of the same class, and a danger of the progeny becoming more and more enfeebled.

There are few people with less knowledge or experience of household duties than the ordinary factory girl, and as a consequence she becomes a wife and a mother knowing little of the duties required of her, and content, as regards the management of her children, to follow the example of her parents and the customs of those amongst whom she lives. Accustomed to a heated atmosphere, the factory operative above all things fears a draught, and so the doors, windows, and fireplaces of the sleeping chamber are kept closed; its cubical capacity is often tested up to, and often above, the proper limit, and in this way the seeds of tubercular and scrofulous disease are engendered, and transmitted from one member of the family to another.

Unwholesome food and the want of cleanliness in its preparation and administration, are the direct causes of many infantile deaths. Bread and starchy preparations are substituted for milk, and where the latter is given, the feeding bottle from its dirty condition, frequently forms a source of danger to the infant's life, After the first week or two, proper and systematic ablution is less and less frequently used, fresh air and sunlight are not recognised as necessary requirements, and altogether there is a want of proper *nursing*, a word pregnant with meaning as applied to infantile life.

In the older manufacturing towns the houses of the poorer classes are crowded together, and the yards are small, badly paved, and largely taken up by the privy and ashpit.

To these conditions are due Infantile Summer Diarrhœa, which in certain parts of Preston at any rate, may with certainty be predicted after the ground temperature at a depth of four feet has reached to a height of 56 degrees.

Amongst other causes must be mentioned that of Insurance, by which the death of a child brings a monetary gain to the parents; the habit of allowing very young children to sleep in the same bed with their parents, resulting in deaths from suffocation, or "overlaying"; and the use of sleeping stuffs to quiet a fractious child, or to ensure a good night's sleep.

These, then, are the causes which sometimes separately, but more frequently in combination, lead to the heavy death-rate amongst infants in our large towns and cities.

As regards remedies, the Medical Officer of Health can close all houses or cellars unfit for habitation, enforce the removal of all nuisances from the neighbourhood of dwellings, and require the conversion of dangerous privies and ashpits into some simple form of water-closet and *ash-pail.* He can keep the subject of Hygiene constantly before the public, and in times of special danger can issue short instructions to parents. Legislation might do something more to control female employment, but regulations too stringent or exacting would only be avoided or broken. Crêches or Day Nurseries in connection with the mill might do much good, but they must be self-supporting, without entailing much trouble or expense upon the mothers. Insurance, being a provident measure, deserves encouragement, but requires restrictions both as to amount, and the age at which a child becomes payable A closer scrutiny should be made in cases of uncertified death, and this could be done by a Medical Adviser to each Coroner, whose duty would be to make enquiry into the circumstances of such deaths, and to decide whether or not a more searching investigation was required.

But Education, whether that given by the Medical Officer of Health, or that received by the rising generation in our Schools, is the remedy to which we must look. Year by year the working-man is taking more interest in matters connected with Public Health, and is beginning to see the loss involved by sickness and death, and to recognise the fact that an infant, like a plant, requires fresh air, pure water, and sunlight.

Dr. ALFRED HILL (Birmingham) said, with regard to the question of infantile mortality, that there were some towns which suffered very much more than others, and especially in the matter of deaths from diarrhœa. Preston had the unenviable reputation of having the largest death-rate of infants from this cause. He should be glad to hear from Dr. Pilkington if he could give any information as to the very high mortality from the disease in Preston.

The Hon. ROLLO RUSSELL (Haslemere) said he should like to ask Dr. Pilkington if he could account for the very large differences between the infant death-rates in certain Model Dwellings, and in the general population of a town. In the buildings of the Metropolitan Association, for instance, the infant death-rate was, per 1000 births, 113 in 1893, 136 in 1894, 110 in 1895, compared with 164, 143, and 166 in the rest of London.

Dr. GARRETT (Cheltenham) mentioned the case of a small village fifteen miles up the Tyne, called Corbridge, where, as Dr. Armstrong stated some years ago, there had not been a death under one year for many years. The infantile death-rate of Cheltenham was between this extreme instance and that quoted by Dr. Pilkington. Dr. Pilkington had given some very interesting particulars in the *resume* of his paper, but he had not told them why the infantile death-rate varied so much in towns of similar character. Why for instance, was the infantile death-rate of Oldham and other mill places in Lancashire less than that of Preston?

Dr. PILKINGTON (Preston) said he thought it probable that had he read the whole of his paper the questions which had been put to him would have been answered. The reason why the infantile death-rate in Preston was so much higher than the infantile death-rate in Bolton, Blackburn, and neighbouring towns, and why the diarrhœal death-rate was so much heavier, was because all the causes work in combination in Preston. It was one of the oldest manufacturing towns in Lancashire. There were more females employed in the mills there than in other towns. The houses in the older part of the town had all the disadvantages, being crowded together, whilst the yards, lobbies, &c., were imperfectly paved. Until lately a great part of the town was provided only with the old-fashioned privies and midden ash-pits These were now being gradually abolished. In many parts of the town they were entirely done away with, the ash-pits having been filled up, and the privies converted into water closets, so that although the nuisance had not altogether been removed, the state of things was very much improved. But, he repeated, it was because in Preston all those causes of evil (present more or less in most manufacturing towns) had been working in combination that Preston until lately had occupied the unenviable position which it had amongst the large towns of the kingdom. There had been a great improvement lately, and when further contemplated alterations were carried out a still greater improvement might be looked for in that town.

The next deaths to be considered are those from causes directly opposite to the ones just discussed. I refer to the mortality due to Old Age, Senile Decay, or a gradual and natural wearing out of vitality.

These amount in number to 82, and vary in age period from 50 to over 90 years. That some deaths, however small in number, should be attributed to these causes under 60 years of age, serves to show that " old age " is not necessarily an actual matter of years, in other words that according to constitution, inherent strength, and manner of living, men vary as to the length of their natural lives.

The majority of these deaths occurred between 70 and 80 years, 19 exceeded the latter period, while two were those of persons who had nearly completed their century.

The deaths registered under the heading "Violence" are made up of various forms of accident and suicide, and amount in number to 51, as against an average of 53 during each of the previous six years. It is somewhat remarkable to note the slight change which occurs in the number of deaths from violence in each succeeding year. To a great extent this is accounted for by the fact that in a town like this, there are no works or mines in which a single catastrophe can suddenly swell the accidental mortality, but still it is strange that year after year the same number of people take their own lives, the same number of children die from burns during the winter months, the same number of deaths occur from street or machinery accidents.

The remaining deaths are grouped together under the heading of "Other Diseases," and amount in number to 664. From various forms of Heart Disease were due the deaths of 84 Males and 105 Females, while affections of the great nerve centres accounted for 103 deaths, of which 43 were those of males, and 60 of females. Information is given as to some of the "Other Diseases" in Table No. 14, where also the deaths are divided into two age periods of under and over five years. Of these "Other Diseases" there are only two which call for any particular comment or explanation, these are Puerperal Fever and Erysipelas. The former—and under this heading I include Puerperal Septicæmia, P. Pyæmia, Peritonitis, &c.—occasioned the deaths of 7 females, all of whom were of necessity in the very prime of life, because of being at a child bearing age. In previous Reports I have alluded to these deaths as being the saddest and the most deplorable with which a household can be afflicted. As a rule they are unforeseen and unexpected, and where the newly born infant survives, it is left wanting—what can never be thoroughly replaced—a mother's care. Or it may be that a family of young children are left to deplore a loss, which happily they are too young thoroughly to understand and appreciate.

The disease is one in which notification is compulsory; and all cases, whether happily terminating in recovery, or, as more frequently happens, in death, were at once investigated. In the majority, no insanitary condition about the dwelling, or no history of possible contact with infection could be discovered, but it is well that such reports should be forwarded as soon as possible after the true nature of the disease has been recognised, in order that every precaution may be taken to prevent the diffusion of a poison, so subtle in character, so easily conveyed, and so deadly in its effects. Moreover greater care might be exercised in many households in which a confinement is expected, not only by attending to the cleanliness of the dwelling and its surroundings, but by avoidance of possible contact with any form of Infectious Fever. Because there is reason to believe that the poison of a Zymotic Disease may produce results ending in Puerperal Fever; and the Registrar General's returns show that those years in which infectious diseases were most prevalent were the years in which there was the greatest mortality after Parturition. Between the poison of Erysipelas and that of Puerperal blood poisoning there is undoubtedly a connection, the curve of mortality of the two diseases closely coinciding, and it is mainly on this account that I have always advocated that the former should be retained upon the Schedule of those diseases concerning which compulsory notification is required.

During the latter part of the year a considerable number of cases of Erysipelas were officially reported, and though the majority of them were not of a serious character, as shown by the small percentage of deaths, and though in no instance could any actual connection between the two diseases be traced, still it was at this season that the cases of Puerperal Fever were most numerous. To be forewarned is to be forearmed, and I mention these points to show the importance, and indeed the necessity, of safeguarding the Puerperal state from possible contact with any form of Infectious disease.

The total deaths from the various causes which have now been considered, amount to 2191, and represent a rate for the year of 19·21 to each thousand of the population. Or making an addition of the deaths which have occurred in the Workhouse (outside the Borough limits) of persons formerly resident in the Town, the rate is increased, as shown on Table 9, to 20·70. If the latter figure used by the Registrar General—is taken as showing the true mortality rate for the Borough, it will be found that in only 4 other of the large towns is the rate exceeded, but if the mortality is confined to that which actually occurred within the town, then a higher death rate has been recorded in at least 10 of these other towns. And since no allowance is made for the Workhouse Population, and since the town has the great disadvantage of not including within its boundaries the township of Fulwood, connected as it actually is with Preston, and inhabited by the better classes, whose death rate is naturally much lower than the average of a manufacturing town, it is not unfair to say that the Death rate for Preston during 1896 was 19·24 per thousand, lower than that for any year for which records are obtainable.

The first and last quarters of the year were those in which was recorded the heaviest mortality, owing to the deaths from Bronchitis and other diseases affected by the colder weather, the total for the third was much increased by the fatality attendant upon Diarrhœa, whilst in all respects the second or Spring quarter gave the best returns.

Some discrepancy may be noticed between Tables No. 1 to 4 and Table No. 14. This is due to the former dealing with the 52 weeks ending December 26th, while in the last named the deaths are tabulated for the 365 days forming the complete year 1896.

In the various Wards, Park and St. John's show the highest rates with 21·69 and 20·56, after which come St. Peter's 19·25, Fishwick 18·77, and Christ Church 15·84, the latter for once losing its accustomed place as the healthiest locality, or rather as having the healthiest population, since Maudland Ward shows the exceedingly low rate of 13·63.

The Birth rate for the year has declined, a condition common to the whole of the Kingdom. The actual number of Births registered was 3,673, and these give a rate of 32.26 per thousand, and show an excess over the number of Deaths of 1482, a greater natural increase than has been recorded for many years past.

Amongst the large towns, Gateshead shewed the highest Birth Rate—35·8, while in only 6 out of the 33 did the rate exceed that of Preston. In 11 the rate failed to reach 30 per thousand, Huddersfield, as in former years, showing the absolute lowest—20·5 per thousand.

With the exception of the year 1894, the rate recorded for the whole of England and Wales was the lowest, and for several years past there has been an increasing reduction in the proportion of Births to population.

In consequence of the resignation—from ill health—of Inspector Hankin, a vacancy towards the close of the year was created in the staff of the Sanitary Department. This was filled up by the appointment of Inspector Livesey who has taken over the district—Christ Church and the greater part of Maudland Ward—as well as the duties of his predecessor, with the exception of the Canal Boats, the supervision of the latter having been transferred to Inspector Hardman in addition to his district of Park Ward.

The Report dealing with the Canal Boats has already been forwarded to the Local Government Board, and shows that little or no change has taken place with respect to them, the number actually upon the Register at the close of the past year being 35. Their general condition has been good, there has been no infringement of the Regulations, nor has any case of Infectious Disease occurred amongst the occupiers or their families.

The summary of work done by the District Inspectors is set forth in Table No. 11, although this only deals with what has been accomplished by formal notice, and takes no account of that which has resulted from the more preferable methods—when possible—of tact and persuasion.

The work of improvement by the filling up of dangerous Ashpits, and the substitution of Water Closets for tumbledown or offensive Privies has been proceeded with, although, owing to the obstruction arising from certain local Trade disputes, the progress made has not been so rapid or continuous as was expected.

The advantages to health resulting from such alterations, especially in the older and more crowded parts of the town, have already been frequently dwelt upon, and indeed it only requires a visit to such localities, and a comparison between the older and the modern system, to convince the most biased advocate of the former that it has had its day, and must now yield to a plan which does away with the prolonged storage of filth in the neighbourhood of the dwelling. The forms of Water-closet used have been either the plain hopper and cistern or the self-acting tipper Closet flushed by the waste water from the slopstone. This latter, in its improved form, has been found to work satisfactorily, and it possesses the advantages ot being automatic in action, and protected from the possibility of injury by frost. In addition to the waste water from the house, which of itself is sufficient to keep the trap clear and the drain flushed, it also utilizes the rain water from the roof and from the surface of the yard, this being conducted to the yard gully and thence by an earthenware pipe to the tipper dish placed directly over the closet trap. By thus making use of water which would otherwise pass directly to the sewer, a considerable saving is effected in the town's water supply, a matter of primary importance to this, as to all large and increasing towns. A working model of this Closet may be seen at the Sanitary Offices, where also property owners may obtain all other information on the subject.

The dispute, to which I have alluded—between the Master Builders and Plumbers and the Corporation—has had the effect of not only for the time impeding Sanitary progress, but has eventually thrown a good deal of additional and unexpected work upon the Sanitary Department. Formerly if a property owner failed to carry out the requirements of the notice served upon him, the Corporation stepped in, and by means of its own workmen effected the necessary alterations, the expenses thus incurred being recoverable as Private Improvements.

Now however the Corporation is debarred from thus proceeding, that is it cannot do the work by its own workmen; but, supposing the owner fails to comply with the notice, the work must be placed in the hands of some tradesman, to whom the Corporation becomes liable, the expenses being recoverable as before. This involves the obtaining of Tenders, and both the Corporation and property owners generally, may congratulate themselves upon having in their service Sanitary Inspectors who are capable of drawing-up a properly worded, and sufficiently binding Specification.

The Common Lodging Houses have received regular attention and supervision, not only in order to ensure their being kept in a cleanly and satisfactory condition, but also to prevent the introduction of Infectious disease, or at any rate to enable the Department to obtain early information of such an outbreak, should one occur. Most of these houses are of the old, and now fortunately almost obsolete pattern, but every opportunity has been taken of changes of ownership, or of management, to introduce improvements, and to increase the amount of air space given to the inmates.

Under the Food and Drugs Adulteration Act, 115 samples of various articles were purchased for analysis, this number considerably exceeding that of any previous year. Of the samples thus examined, 69 were those of milk; and out of this number 57 were found to be of genuine and satisfactory character. The remaining 12 varied very much in quality, some being described as passable, others as slightly watered or deprived of a proportion of the cream, while in 2 cases there was evidence that water had been added to milk already of the poorest quality. In the two last mentioned cases further proceedings were instituted, and fines of ten shillings and forty shillings, together with costs, were respectively imposed. In the other cases, in which the analysis showed that there had been not so much an adulteration by the addition of water, as a deprivation of a portion of the cream, it was considered sufficient that cautionary letters should be sent to the vendors. The other articles analysed consisted of Butter, Lard, Coffee, and Bread, with certain Condiments and Drugs. The results of the analyses of these, as well as of the Milk, are all summarised in Table No. 6.

Although the experience of the past, like that of former years, tends to show that no great amount of adulteration is carried on in the town, it is well that all persons dealing in Food or in Drugs should know that the articles which they sell are liable at any time to be examined, and that under certain conditions, they are absolutely responsible for their purity and soundness. Such an article as milk may be adulterated in the first instance by the farmer or cowkeeper from whose shippon it proceeds, or afterwards by the retail vendor; and it is on this account that samples will continue to be taken from the farmers' carts as they enter the town, from the Dairies within the Borough, and from the Shopkeepers who retail milk in smaller quantities.

In addition to his duties under the Food and Drugs Adulteration Act, the work of Inspector Marsden is further shown in Tables Nos. 7 and 8.

From these it will be seen that Meat amounting to 49,832 lbs. in weight has at different times been condemned and destroyed. The whole of this large amount was voluntarily submitted for examination, in other words none was seized whilst being secretly and covertly prepared or offered for sale. This question leads directly to that of Public Abattoirs and Private Slaughter Houses, and I have every satisfaction in stating that a solution to this long-standing problem appears now to be not only possible but near at hand. The Abattoir erected at the Cattle Market has been found in every respect suitable for the work for which it was intended, whilst interviews between the Butchers' Representatives and the Markets Committee—still carried on at the time of writing—would seem to show that by mutual concessions, the question as to to Private Slaughter Houses will at last be determined.

Although the abolition of these will not be so universal as I at one time hoped, all which are utterly and unmistakeably unsuitable will be done away with, whilst those which are retained—or which may afterwards be erected—will be so altered, or constructed, as to comply with the reasonable requirements of a Slaughter-house permitted to exist within a town. The improvement in the condition of such as are allowed to remain will admit of the meat being killed in a decent and cleanly manner, and will diminish the chance of their becoming a nuisance to the neighbourhood, whilst the marked reduction in their number will proportionately facilitate the possibility of a thorough inspection of the Towns Meat Supply.

In addition to the routine inspection and testing of drains on account of some suspected defect, an increased number of applications for examination were received from private sources. These as a rule referred to better class houses, and were either from the ingoing tenant, or from the landlord at the time of a change of tenancy. The larger and the older the house, and the greater the necessity for a periodical overhauling of the drainage.

Unfortunately in former years little or no record was kept of changes in the drains consequent upon the alteration or enlargement of the house, and this more especially if the alteration was carried out, as most frequently was the case, by a private contractor.

As a consequence it is often a matter of difficulty to ascertain the exact course of the drains, and not unfrequently old and disused drains and drain pipes are brought to light, the existence of which was unknown and therefore unsuspected. These being covered up underground, and so out of sight, were not always cut off, filled in, or sealed, in the most careful manner, and are besides subject to damage from rats, or from the subsidence of the ground.

Modern houses—if properly constructed—are in great measure free from these dangers, but I invite applications from all who desire to have their drains tested, and such applications—if reasonable—will receive every attention.

As in former years, disinfectants were freely and gratuitously distributed, not only to houses in which cases of infectious disease were known to exist, but to anyone who wished to use them about the ashpit, yard, or premises.

In the same way lime, mixed with size and ready for application, was given out in large quantities, more especially during Spring time and the early months of Summer.

Judging from the advantage which has been taken of this free supply it would seem that the benefits resulting from the use of limewash about a dwelling are beginning to be better understood, and seeing that it can be obtained without payment, and that in suitable cases brushes also are supplied, there is no reason why the back yard of the poorest house should present a dingy or dirty appearance.

The owner is expected, and required to see to the limewashing of the interior of the dwelling, but the tenant can surely find time to give a coating of whitewash to the yard and closet walls.

The effect is to sweeten and purify the air, to enliven the surroundings, and to give considerably more light to the kitchen and back rooms of the cottage.

And it is trifling matters of this kind which in the bulk have their effect upon the Public Health ; and I am satisfied that if each person would endeavour to keep the yard of his dwelling—however small and confined it may be—in a clean and tidy condition, one great step would be taken towards a reduction in the Infantile Mortality. Rubbish and lumber allowed to accumulate in a back yard all tend to pollute the air, and so to militate against the health of the occupants ; and it is on this account that I advocate the water-closet and ash-pail system, by which the excreta is at once carried to the sewers, while the household refuse—such as cannot be burnt in the kitchen fire—is not allowed to remain for a longer period than a single week.

In the month of December, by direction of the Streets and Buildings Committee, I visited Exeter for the purpose of examining the patent Septic Tank Method of dealing with sewage. Full information of the process was given to me, and I was allowed every opportunity of examining the installation which at the time was dealing with the whole of the sewage from a portion of the city—St. Leonards'.

I also took samples of the sewage both before and after treatment, and conveyed them, together with other samples taken from the neighbouring town of Yeovil, where the same system was being tried, to London, where they were submitted for analysis to Dr. Voelcker.

My report on this matter, together with the result of Dr. Voelcker's analysis, was in due course presented to the Streets and Buildings Committee, and was afterwards printed for private circulation amongst its members.

The question of dealing with the refuse from large masses of population is one of the most difficult problems of the day. Fresh systems are constantly being invented, but the majority of them, however feasible they may appear in theory, generally fail to bear the test of practical working, or prove to be too expensive to admit of adoption.

The plan of returing to the earth the substances which have been withdrawn from it is not only the most natural, but also—where sufficient land can be obtained—the least expensive, and Preston may congratulate itself upon having in the Freckleton Farm, an area of land which in extent, in situation, and in the nature of its soil, is eminently adapted for its present purpose as a sewage farm.

An increased number of Mills and Workshops have undergone inspection, and in several the sanitary accommodation has been revised and improved. Under the last Factory Act of 1895, all newly established Workshops—however small they may be—are notified by the Factory Inspector to the Sanitary Department, in order that they may be examined as to space, ventilation, &c.

In the same way any defects of cleanliness or the like, discovered by the Factory Inspector in the course of his visits, are reported, and it then becomes the duty of the Sanitary Officers to take such steps as will ensure an improvement in the conditions complained of.

Greater attention has been given to the nuisance caused by the emission of dense smoke, the observations taken have been more numerous, and in several instances improvement has followed upon the representations made to the owners or managers of the offending works. In only one instance was recourse had to legal proceedings, and here, during the time afforded by repeated adjournments, the nuisance was so far abated that the summons was withdrawn upon payment of costs, and without prejudice to future proceedings, should there at any time be a recurrence of the offence.

In addition to the foregoing, and to the prosecutions under the Adulteration Act, there were only two other cases in which it was necessary to issue a summons in order to enforce compliance with the reqnirements of a formal notice. The first referred to the closing of certain houses,which, being built back to back, were without thorough ventilation, and were also deficient in the amount of yard space.

Eventually the necessary works were done, the houses being converted into single dwellings with through ventilation, and the summons was then withdrawn upon the payment of costs.

In the other case, proceedings were instituted against two butchers, for causing a nuisance by the accumulation of a quantity of manure and garbage in the yard common to their Slaughter-houses.

There was practically no defence, and fines of Forty Shillings, with the usual Costs, were imposed. This last case formed the subject of a special Report to your Committee, and, with its antecedent history, might be cited as an illustration of the evils attendant upon

Private Slaughter-houses, and as a proof of the unsatisfactory conditions under which, in very many of them, the meat is dressed and prepared for food.

The Bake-houses in the town have been regularly visited, and the provisions as to lime-washing and general cleanliness have been enforced.

As in former years, the Town has had the advantage of an excellent water supply, well adapted for all domestic purposes; and although the rainfall was much below the average—only amounting to 29·13 inches—at no time was there an actual dearth of this essential to health. The additional 36 inch main from the Alston Reservoir has now been completed, and when in full working order will materially improve the pressure and supply.

The Storm Water Culvert, designed by the Borough Surveyor, was in progress during the year, and is now finished, the effect being to materially relieve the main system of sewerage.

In dealing with Infantile Mortality I have already said that in September I had the privilege of attending the Congress of the Sanitary Institute, held in Newcastle. At this meeting a number of addresses were given, and papers read, of the greatest importance and interest, whilst the discussions which followed afforded an opportunity of hearing the best and latest opinions on the Sanitary questions and difficulties of the day.

In addition there was a well-arranged Exhibition of Sanitary appliances, and of recent inventions having a more or less direct bearing upon Sanitation.

Appended to this Report are the various Tables to which allusion has been made, together with the usual Plans and Chart.

These serve to show the work done, and the progress made, from year to year, and though much yet remains to be done, and though it is impossible to tell what may occur in the future, there has been much in the past year to render the present Report—what I hope it may be considered— a satisfactory one.

H. O. PILKINGTON,

April 6th, 1897.

Medical Officer of Health.

PORT SANITARY.

With regard to the administration of Port Sanitary matters there is not much of interest, beyond the main facts that the number of Vessels examined shows an increase over that of any preceding year, and that the work of inspection has been carefully and regularly carried out.

As will be seen from Table No. 12, which deals with these matters, a considerable number of defective conditions have been remedied, which must tend to improve, possibly the health, and certainly the comfort of the various crews.

And although on no occasion was it found necessary to serve a formal notice, yet in every instance the defect complained of was remedied, or the required work was in progress, before the Vessel left the Dock. Many of the Boats were small coasters, constantly trading with this Port; and these, once put into a good sanitary condition, do not require more than a short examination to see that this condition is maintained, and that the forecastle, closets, &c., are kept in a cleanly condition.

No Infectious disease was present in the crew of any Vessel entering the River, nor did any case occur during a vessel's stay in the Port, such cases as came under observation being of a comparatively trivial nature.

The Hospital erected in 1893, in order to deal with possible cases of Sea-borne Cholera, has been kept in a perfectly serviceable condition, but so far no call has been made upon its services.

The recent outbreak of Plague in Bombay and the surrounding district, has naturally excited the attention of all Port Sanitary Authorities, more especially as the disease is one which may remain latent and unsuspected for a considerable time. There is little chance of even a stray case finding its way into our Port, but the possibility, however remote, must not be overlooked, and therefore the mere existence abroad of such an outbreak calls for increased watchfulness at home, on the part of the Sanitary Department.

The germs of the disease may be conveyed personally—by passenger or crew—or in any form of merchandise, but like most other epidemics it depends upon insanitary conditions for its spread, so that should a stray case be imported it is to attention to the general laws of health, that we must look for its control and suppresion.

In conclusion, I express the hope that the projected improvement in the River may lead to an increase of trade, and that my Report for the ensuing year may deal with as satisfactory a sanitary condition as that which has marked the year 1896.

H. O. PILKINGTON,

April 6th, 1897.

Medical Officer of Health, Port Sanitary District.

TABLE No. 1.

Number and Causes of Deaths at different Ages, for the Year ending December 31st, 1896.

Cause of Death.	Unde 1 Year.	1 to 2	2 to 5	5 to 10	10 to 15	15 to 25	25 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100	Total.	Year 1895	Year 1894	Year 1893	Average for 6 years
Small Pox	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	1	...	·13
Fever	...	...	...	2	1	5	9	4	1	1	..	...	...	23	22	29	48	31·64
Scarlatina, &c.	...	...	1	2	...	...	...	...	...	...	...	...	...	3	4	9	25	27·36
Measles	2	1	...	...	...	...	.	...	...	...	...	...	...	3	46	35	168	68 67
Diarrhœa	113	16	1	...	...	1	...	...	2	2	...	...	...	135	284	143	343	264·50
Whooping Cough	25	10	4	...	...	..	...	...	...	...	...	...	...	39	46	41	39	45·63
Diphtheria	1	4	4	2	...	...	...	...	...	...	...	...	...	11	4	8	11	9·64
Croup	2	5	8	2	1	...	...	...	...	...	...	...	...	18	19	7	8	11·56
Consumption	1	1	...	6	5	28	59	29	13	6	1	...	...	149	162	166	190	175·87
Bronchitis	72	21	7	1	...	1	8	18	47	57	28	8	...	268	289	238	268	291 13
Inflammation of Lungs	47	17	20	10	1	14	20	21	13	6	8	...	...	177	168	166	205	218·00
Teething, Convulsions Premature Births & Debility	481	50	26	10	1	...	...	...	...	...	...	...	...	568	631	522	638	594·00
Old Age	...	...	...	...	...	..	...	...	2	7	52	19	2	82	90	75	68	77·84
Violence, &c.	4	2	3	2	1	3	6	5	11	8	4	2	...	51	62	56	55	53·56
Other Diseases	11	5	12	17	23	39	87	106	142	124	88	10	...	664	701	690	687	710·67
Total	759	132	86	54	33	91	189	183	231	211	181	39	2	2191	2528	2186	2753	2580·20

TABLE No. 2.

Number and Causes of Deaths in each Month of the Year ending December 31st, 1896.

Cause of Death.	January	February	March	April	May	June	July	August	September	October	November	December	Total
Small Pox	...	...	...	...	...	...	...	...	...	...	...	...	...
Fever	2	2	1	2	2	1	2	...	4	2	1	4	23
Scarlatina, &c.	...	...	...	...	...	...	...	...	1	1	1	...	3
Measles	1	...	...	...	2	...	...	...	...	...	...	...	3
Diarrhœa	3	...	1	1	2	8	25	62	22	11	...	...	135
Whooping Cough	...	1	...	...	9	3	5	6	8	2	1	4	39
Diphtheria	1	2	1	1	...	2	...	1	...	...	2	1	11
Croup	5	1	2	2	1	...	...	3	...	1	3	...	18
Consumption	8	17	21	14	11	6	6	11	12	12	16	15	149
Bronchitis	24	47	25	31	13	8	5	18	7	18	45	27	268
Inflammation of Lungs	13	21	16	11	18	10	8	6	13	20	25	16	177
Teething, Convulsions, &c.	48	52	56	30	46	34	34	65	39	64	50	50	568
Old Age	7	14	10	4	4	4	5	13	2	5	7	7	82
Violence, &c.	5	4	2	1	4	4	4	3	3	6	7	8	51
Other Diseases	61	70	52	55	73	50	39	57	47	54	57	49	664
Total	178	231	187	152	185	130	133	245	158	196	215	181	2191

TABLE No. 3.

Number and Causes of Deaths in each Ward for the Year ending December 31st, 1896.

Wards.	Small Pox.	Fever.	Scarlatina, &c.	Measles.	Diarrhœa and Dysentery.	Whooping Cough.	Diphtheria.	Croup.	Consumption.	Bronchitis.	Inflammation of Lungs.	Teething, Convulsions, Premature Births, & Debility.	Old Age.	Violence, &c.	Other Diseases.	Total Deaths.	Rate per 1000 per annum.	Births.	Rate per 1000 per annum.	Population.
St. Peter's Ward	...	4	1	...	34	...	2	5	29	39	35	131	10	4	122	416	19·25	794	36·74	21606
Park Ward	...	6	1	1	46	16	3	2	31	78	52	152	23	14	172	597	21·67	905	32·85	27548
Fishwick Ward .	...	5	...	2	24	13	2	4	35	64	36	112	22	4	120	443	18·77	798	33·81	23597
St. John's Ward...	...	3	1	...	15	6	1	4	20	45	18	66	9	4	84	276	20·56	413	30·76	13426
Christ Church Wd.	...	1	...	...	9	1	3	1	12	20	21	47	6	9	81	211	15·84	348	26·13	13314
Maudland Ward...	...	3	...	...	7	3	...	2	17	22	12	58	11	1	60	196	13·63	412	28·66	14373
Gaol, Infirmary, &c.	...	1	...	...	..	...	...	...	5	...	3	2	1	15	25	52	...	3	...	...
Total.........	...	23	3	3	135	39	11	18	149	268	177	568	82	51	664	2191	19·24	3673	32·25	113864

Death Rate per annum per 1,000 of Population for the Year..............................19·24

Average Death Rate per annum per 1,000 of Population for the past six years......23·58

Do. Do. for 10 years..................23·88

Death Rate per annum per 1,000 of Population, of Children under one year ...... 6·66

Per centage of Deaths under one year to total Deaths for the Year ....34·82

Do. Do. for 10 years........................33·93

TABLE No. 4.

Number of Deaths in each Ward during each Month of 1896.

Wards.	January	February	March	April	May	June	July	August	September	October	November	December	Total
St. Peter's Ward	33	40	32	27	38	20	29	50	36	34	54	23	416
Park Ward	46	59	46	35	46	48	35	73	48	61	56	44	597
Fishwick Ward	37	65	38	35	34	20	27	47	29	31	40	40	443
St. John's Ward	26	25	27	18	24	21	12	25	20	18	27	33	276
Christ Church Ward	16	21	25	23	23	7	11	22	7	26	12	18	211
Maudland Ward	15	19	17	11	19	9	15	21	15	21	20	14	196
Gaol, Infirmary, &c.	5	2	2	3	1	5	4	7	3	5	6	9	52
Total	178	231	187	152	185	130	133	245	158	196	215	181	2191

TABLE No. 5.

Per centage of Deaths from Zymotic Diseases to Sickness reported during the Year ending December 31st, 1896.

Disease.	Number of Cases Reported.	No. of Deaths.	Per Centage.
Small Pox	...	...	...
Typhoid Fever	131	23	17·55
Scarlet Fever.........................	107	3	2·80
Diphtheria	34	11	32·35

TABLE No. 6.

Substances submitted for Analysis during the year 1896.

Nature of Article.	No. of Samples	Result.
Milk	57	Genuine
Butter	21	Do.
Lard	8	Do.
Coffee	6	Do.
Bread	3	Do.
Tincture of Rhubarb	2	Do.
Pepper	1	Do.
Milk	1	One-third of cream removed, cautioned by Town Clerk.
Milk	1	Poor in cream do.
Milk	1	One-third of cream removed do.
Milk	2	Half of cream removed
Milk	1	Slightly watered
Milk	1	Thirteen parts of water added to every hundred parts of poorest milk. Fined 10/- and Costs or 14 days
Milk	1	One-third of cream removed from otherwise rich milk
Milk	1	Slightly watered but rich in cream
Milk	1	Thirty-five parts of water added to every hundred parts of poorest milk. Fined 40/- and costs or one month
Milk	1	Passable, but very poor in cream
Milk	1	Passable
Tincture of Rhubarb	1	Slightly deficient in spirit and saffron
Tincture of Rhubarb	1	Deficient in spirit and saffron
Tincture of Rhubarb	2	Deficient in spirit, no evidence of saffron
Tincture of Rhubarb	1	Passable, little spirit or saffron, but strong in essential ingredients

TABLE No. 7.

Contagious Diseases (Animals) Act, 1878.

Name of Disease.	Situation of Premises.	Date of Outbreak.	Number of Diseased Animals.	Number of Healthy Animals in contact with Disease.	Slaughtered by Order.	Date when Premises were declared free from Disease.	Number of Visits.
Swine Fever.	16, Pechell Street.	March 21st, 1896.	Three.	Twenty.	Twenty Three.	April 19th.	Six.
Swine Fever.	Old Church Army Barracks Kent St.	July 22nd, 1896.	Two.	One.	Three.	Aug. 27th 1896.	Five.

TABLE No. 8.

Return of Work done by Inspector of Food and Drugs, &c., for year, 1896.

Food and Drugs, Samples purchased	115	
Cow-sheds and Dairies Visited	808	
Slaughter-houses Visited	8624	
Meat Examined and Destroyed	49832	lbs.
Fish Do.	13944	,,
Fruit Do.	820	,,

TABLE No. 9.

Birth Rate, and Analysis of the Zymotic Death Rate in 33 of the largest English Towns for the year ending December 31st, 1896. Compiled from the Registrar-General's Returns.

Name of Town	Population	Birth Rate	Death Rate	ZYMOTIC DEATH RATE.								Deaths under one year to 1,000 Births.
				Small Pox.	Measles.	Scarl't Fever	Diphtheria	Whooping Cough	Fever	Diarrhœa.	Total.	
London	4,421,955	30·1	18·5	0·00	0·83	0·21	0·59	0·66	0·13	0·72	3·16	162
West Ham	261,297	32·6	16·1	0·01	0·44	0·20	0·69	0·60	0·23	0·82	3·02	167
Croydon	118,006	25·0	14·2	0·00	0·56	0·03	0·24	0·52	0·15	0·44	1·95	150
Brighton	120,499	24·6	16·1	0·00	0·44	0·04	0·15	0·26	0·11	0·60	1·63	136
Portsmouth......	178,639	27·5	16·5	0·00	0·70	0·10	0·11	0·33	0·14	0·73	2·13	156
Plymouth	90,276	28·8	19·5	0·00	1·00	0·03	0·14	0·18	0·06	0·83	2·26	178
Bristol	230,623	27·6	16·9	0·02	0·62	0·25	0·15	0·25	0·07	0·52	1·90	143
Cardiff	162,690	33·7	16·8	0·01	0·22	0·16	0·36	0·64	0·07	0·78	2·28	165
Swansea	98,645	30·5	16·8	0·02	0·06	0·04	0·09	0·54	0·14	0·25	1·16	160
Wolverhampton	86,530	34·3	19·9	0·00	0·10	0·23	0·60	0·35	0·41	1·42	3·14	184
Birmingham ...	501,241	32·5	20·8	0·00	0·61	0·29	0·53	0·75	0·20	1·22	3·61	198
Norwich	108,630	30·7	17·3	0·00	1·08	0·03	0·21	0·08	0·19	0·75	2·35	165
Leicester	198,659	30·7	16·7	0·00	0·61	0·24	0·31	0·25	0·19	1·37	2·99	188
Nottingham ...	229,775	28·9	17·4	0·00	0·86	0·11	0·05	0·37	0·33	0·70	2·44	168
Derby	101,770	28·0	15·6	0·00	0·32	0·10	0·10	0·53	0·20	0·65	1·92	151
Birkenhead	109,343	31·7	19·1	0·00	1·05	0·27	0·20	0·52	0·23	0·69	2·98	177
Liverpool.........	632,512	34·8	22·7	0·00	0·47	0·34	0·24	0·46	0·32	1·17	3·02	173
Bolton	120,380	31·3	20·7	0·00	0·05	0·33	0·11	0·84	0·39	0·36	2·84	169
Manchester	529,561	33·0	22·6	0·00	1·06	0·36	0·15	0·67	0·22	0·94	3·43	176
Salford	210,707	34·9	22·6	0·00	0·95	0·48	0·22	0·89	0·33	1·25	4·14	200
Oldham	143,442	27·2	20·2	0·00	1·16	0·38	0·24	0·37	0·15	0·62	2·94	183
Burnley	102,805	31·0	17·5	0·00	0·61	0·04	0·45	0·26	0·12	0·70	2·20	169
Blackburn	129,459	27·7	17·8	0·00	0·31	0·06	0·07	0·35	0·24	0·73	1·79	170
Preston	**113,864**	**32·6**	**20·7**	**0·00**	**0·03**	**0·02**	**0·10**	**0·37**	**0·22**	**1·12**	**1·89**	**204**
Huddersfield ...	100,463	20·5	16·4	0·00	0·28	0·18	0·20	0·53	0·12	0·26	1·60	166
Halifax............	94,775	24·2	17·3	0·00	0·16	0·00	0·21	0·35	0·20	0·15	1·09	148
Bradford	228,809	25·5	16·5	0·00	0·44	0·10	0·07	0·45	0·12	0·38	1·58	143
Leeds	402,449	30·7	18·7	0·00	0·49	0·17	0·12	0·61	0·21	0·70	2·31	169
Sheffield	347,278	34·0	19·2	0·00	0·57	0·28	0·15	0·58	0·28	1·03	2·92	173
Hull	220,844	31·9	18·8	0·00	1·16	0·25	0·22	0·50	0·27	0·91	3·32	174
Sunderland	140,386	34·1	19·8	0·00	1·02	0·19	0·05	0·54	0·37	0·85	3·03	158
Gateshead	98.436	35·8	19·0	0·00	1·35	0·25	0·18	0·35	0·21	0·72	3·09	171
Newcastle	212,223	31·0	18·4	0·00	0·64	0·12	0·18	0·48	0·15	0·52	2·09	165

TABLE No. 10.

Meteorological Observations for the year ending December 31st, 1896.

Month.	Attached Thermometer.	Barometer.	Barometer corrected to 32deg. Fahr.	Hygrometer.		Temperature in Shade.		Earth Thermometer.		Mean Daily Temperature.	Humidity Saturation=100	Temperature of Town's Water.	Rainfall in inches.	Wind velocity in miles.	Number of Deaths from	
				Dry Bulb.	Wet Bulb.	Maxi-mum.	Mini-mum.	One Foot	Four Feet.						Bronchitis	Diarrhœa
January	41·71	30·055	30·160	42·53	41·85	45·15	37·99	43·96	Gone for R'p'rs.	41·89	94	38·9	2·22	2911·3	24	3
February ...	41·71	30·131	30·243	41·74	42·11	45·58	37·42	41·92	44·74	42·83	90	40·9	1·29	3670·9	47	...
March.........	43·46	29·549	29·690	44·49	42·57	48·42	39·10	42·92	44·64	43·99	85	41·0	4·93	4368·6	25	1
April	46·99	30·025	30·121	48·17	45·62	52·45	41·71	47·08	46·11	47·52	81	42·3	1·71	4857·2	31	1
May............	55·21	30·200	30·261	58·67	53·92	62·24	47·10	50·99	49·75	52·64	71	55·1	0·51	3592·8	13	2
June	63·11	29·848	29·902	64·96	56·64	68·47	54·71	54·64	54·35	62·70	69	62·3	2·05	3287·2	8	8
July	61·45	29·926	29·985	62·71	58·14	66·82	55·22	Gone for R'p'rs.	56·88	61·35	74	61·9	2·31	4613·5	5	25
August	58·85	29·973	30·031	59·42	55·67	63·35	52 39		56·92	58·63	75	59·2	2·42	3646·8	18	62
September ...	55·96	29·610	29·689	57·02	54·08	60·82	49·31	53·99	55·64	55·72	81	58·1	5·57	4811·8	7	22
October	43·89	29·621	29·710	44·96	44·17	51·17	37·94	44·82	50·01	44·91	84	52·1	3·55	2985·2	18	11
November ...	41·03	30 048	30·160	42 03	40·46	46·13	36·53	41·85	45·17	41·27	90	43·2	1·44	2534·3	45	...
December ...	37·35	29·770	29 893	38·53	37·10	42·17	35·14	38·28	43·21	38·38	90	40·3	1 75	3240·4	27	...

TABLE No. 11.

Summary of Work done during the Year ending December 31st, 1896.

	No. 1 District.	No. 2 District.	No. 3 District.	No. 4 District.	TOTAL.
Number of Ashpails emptied	...	...	...	...	697,157
„ Ashpits emptied	...	...	...	...	14,935
„ Complaints received	209	265	471	310	1,255
Inspection of Dwelling Houses	3654	3940	3946	1244	12,784
„ Cellars	266	225	111	3	605
„ Schools	24	40	22	3	89
„ Lodging Houses	840	461	...	138	1,439
„ Slaughter Houses	193	451	78	213	935
„ Canal Boats	...	118	...	8	126
„ Dairies and Milkshops	...	205	45	...	250
„ Mills and Workshops	283	367	187	67	904
„ Bakehouses	167	338	53	13	571
„ Markets	...	202	39	32	273
„ Ashpits and Yards	4343	4386	4106	1686	14,521
„ Drains	4502	4516	4407	1771	15,196
„ Infected Houses	168	60	183	64	475
Circular letters sent	...	...	1	6	7
Notices served for Slopstone Pipes	11	10	7	6	34
„ Defective Drains	330	316	373	79	1,098
„ „ Spouts	21	20	27	3	71
„ „ Water Closets	97	103	101	24	325
„ „ Privies & Ashpits	72	38	47	11	168
„ Privies converted into W.Cs'.	110	69	84	5	268
„ Cellargrate Dangerous	3	4	1	2	10
„ Overcrowding	...	...	1	...	1
„ Limewashing	29	29	70	10	138
„ Yard Pavement	21	13	78	5	117
„ Manure Accumulations	2	10	10	...	22
„ Stagnant Water	...	4	9	...	13
„ General Nuisances	32	30	23	2	87
„ Sewer, Level, and Pave	222	161	...	...	383
Cautionary Notices as to turning Steam into Sewers	36	35	25	...	96
Smoke Observations	28	20	41	2	91
„ Notices Served	2	...	...	...	2
Animals Removed	4	5	11	3	23
Houses Fumigated	91	83	83	55	312
Bedding Disinfected	13	34	13	8	68
Drains Tested	11	5	11	17	44
Re-Inspections	727	1514	462	394	3,097

TABLE No. 12.

Return of Port Sanitary Work for Year 1896.

Steamships inspected		632
Sailing Vessels inspected		168
Re-Inspections		247
Condition of Vessels examined	Good	609
	Passable	75
	Defective	116

Defective conditions remedied :—

Paints stored in Forecastle	6
Forecastle Deck Leaking	17
Do. Dirty	49
Do. Requiring Painting	33
Do. Defective Ventilation and Light	9
Do. Lamp Defective	1
Forecastle (on Deck) not provided with Scuppers	1
Defective Privies and Water Closets	21
Do. Water Casks replaced with Iron Tanks	4
Water Casks and Tanks Dirty	23
Provision and Meat Lockers not Ventilated	44
Foul Bilges	21
Do. Peaks	1

TABLE No. 13.

The estimated Population, Number of Births and Deaths, Rates per thousand, and natural increase in the Borough, for each year since 1841.

Years.	Estimated Population	No of Deaths.	Death Rate per 1000.	No. of Births.	Birth Rate per 1000.	Natural Increase
1841	51 000	1508	2957	1974	38·70	466
1842	52 840	1550	2933	1944	36·79	394
1843	54,680	1459	26 38	1975	36·12	516
1844	56,520	1380	24 42	2200	38·92	820
1845	58,360	1635	28.01	2293	39·29	558
1846	60,200	2189	36.36	2475	41·09	286
1847	62,050	2059	33.18	2268	36·59	209
1848	63 900	1550	24 26	2223	34·79	673
1849	65,750	1751	26.63	2403	36·55	652
1850	67,000	1745	25 81	2649	39·19	904
1851	69,450	2241	32.26	2803	40·36	562
1852	70,850	2284	32.23	2998	42·31	714
1853	72,250	2346	32.47	3072	42·51	726
1854	73,600	2013	27 35	3037	41·26	1024
1855	75,000	2557	34.10	3071	40·95	514
1856	76,400	2251	29.46	3151	41·24	900
1857	77,800	2131	27.39	3286	42·24	1155
1858	79,200	2545	32 13	3082	38.91	537
1859	80,600	2111	26 19	3399	42.17	1288
1860	82 000	2236	27·27	3381	41.23	1145
1861	82,985	2585	31.15	3626	43.69	1041
1862	83,231	2411	28 97	3522	42.32	1111
1863	83,477	2142	25.66	3388	40.57	1246
1864	83,686	2432	29 06	3422	40.89	990
1865	83,932	2708	32 26	3338	39.77	630
1866	84,178	2854	33.90	3535	41.99	681
1867	84,424	2608	30.89	3732	44.20	1124
1868	84,670	2798	33.04	3710	43.82	912
1869	84,916	2248	26.47	3434	40.44	1186
1870	85,162	2406	28.25	3486	40.93	1080
1871	85,427	2541	29.75	3438	40·24	897
1872	85,654	2294	26.78	3704	43·24	1410
1873	86,000	2899	33.71	3558	41·37	659
1874	86,000	2962	34.44	3582	41·65	620
1875	86,000	2581	30 01	3499	40·68	918
1876	86,600	2331	26.92	3623	41·84	1292
1877	87,000	2336	26·85	3601	41·39	1265
1878	87,300	2502	28·66	3697	42·35	1195
1879	87,600	2395	27·34	3403	38 83	1068.
1880	88,000	2425	27·35	3475	39·49	1050
1881	96,524	2044	21·17	3489	36·14	1445
1882	97,656	2511	25·71	3785	38·76	1214
1883	98564	2345	23·79	3576	36·28	1231
1884	99 481	2540	25·53	3745	37·64	1205
1885	100,406	2563	25·52	3868	38·52	1305
1886	101,340	2769	27·32	3961	39·08	1192
1887	102,283	2703	26·42	3870	37·83	1167
1888	103,234	2326	22·53	3823	37·03	1497
1889	104,194	3019	28·97	3912	37·63	902
1890	105,163	2726	25·92	3718	35·35	992
1891	107,864	2807	26·02	3830	35·50	1023
1892	109,038	2481	22·75	3686	33·80	1205
1893	110,225	2753	24·97	3809	34·55	1056
1894	111,425	2186	19·61	3545	31·81	1359
1895	112,638	2528	22·44	3702	32·95	1174
1896	113,864	2191	19·24	3673	32·25	1482

TABLE No. 14.

TABLE OF DEATHS during the year 1896, in the Preston Urban Sanitary District.

Classified according to DISEASES, AGES, and LOCALITIES.

Names of Localities adopted for the purpose of these Statistics: public institutions being shown as separate localities. (Column for Population and Births are in Table B)	Mortality from all causes at subjoined Ages.								Mortality from subjoined causes, distinguishing Deaths of Children under Five Years of Age.																					
													Fevers.																	
	At all Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		Small Pox.	Scarlatina	Diphtheria.	Membranous Croup.	Typhus	Enteric or Typhoid	Continued	Relapsing	Puerperal	Cholera	Erysipelas	Measles	Whooping Cough.	Diarrhœa and Dysentery.	Rheumatic Fever.	Ague	Phthisis	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease	Injuries	All other Diseases.	TOTAL.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
St. Peter's Ward	417	158	43	16	23	122	55	Under 5	...	1	2	3	...	...	..	...	...	...	...	...	...	33	...	...	2	31	...	1	128	201
								5 upwards	...	...	...	2	...	4	...	...	1	...	...	...	...	1	3	...	30	46	34	2	93	216
Park Ward	617	232	67	15	24	181	98	Under 5	...	1	3	4	...	...	...	...	...	...	...	1	17	46	...	...	2	58	...	2	166	300
								5 upwards	...	...	...	...	...	6	...	...	4	...	...	...	...	...	1	...	31	73	53	12	134	314
Fishwick Ward	439	160	40	15	21	135	68	Under 5	...	...	1	4	...	...	...	...	...	...	1	2	12	21	...	...	...	44	2	...	112	199
								5 upwards	...	...	1	...	...	5	...	...	2	...	...	...	...	2	3	...	33	57	36	3	98	240
St. John's Ward	275	95	31	10	6	94	39	Under 5	...	...	1	5	...	...	...	...	...	...	...	...	6	14	1	...	5	29	...	3	62	126
								5 upwards	...	1	...	...	...	2	...	...	...	...	...	...	...	...	1	...	16	36	23	1	67	147
Christ Church Ward	212	56	20	9	8	85	34	Under 5	...	...	1	1	...	1	...	...	...	...	...	...	1	8	...	...	...	15	...	...	46	73
								5 upwards	...	...	2	...	..	1	...	...	...	...	1	...	...	2	1	...	11	26	21	9	63	137
Maudland Ward	193	57	19	12	9	59	37	Under 5	...	...	...	1	...	...	...	...	...	...	...	...	3	6	...	...	1	9	1	...	55	76
								5 upwards	...	...	...	...	...	3	...	...	...	...	1	...	1	1	...	...	17	26	16	...	52	117
Infirmary, Gaol, &c.	58	2	2	8	7	34	5	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	4
								5 upwards	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	6	3	7	15	21	54
Total	2211	760	222	85	98	710	336	Under 5	...	2	8	18	...	1	...	...	...	...	1	3	39	128	1	...	10	186	3	8	571	979
								5 upwards	...	1	3	2	...	22	...	...	7	...	2	...	1	6	10	...	144	267	190	42	528	1225

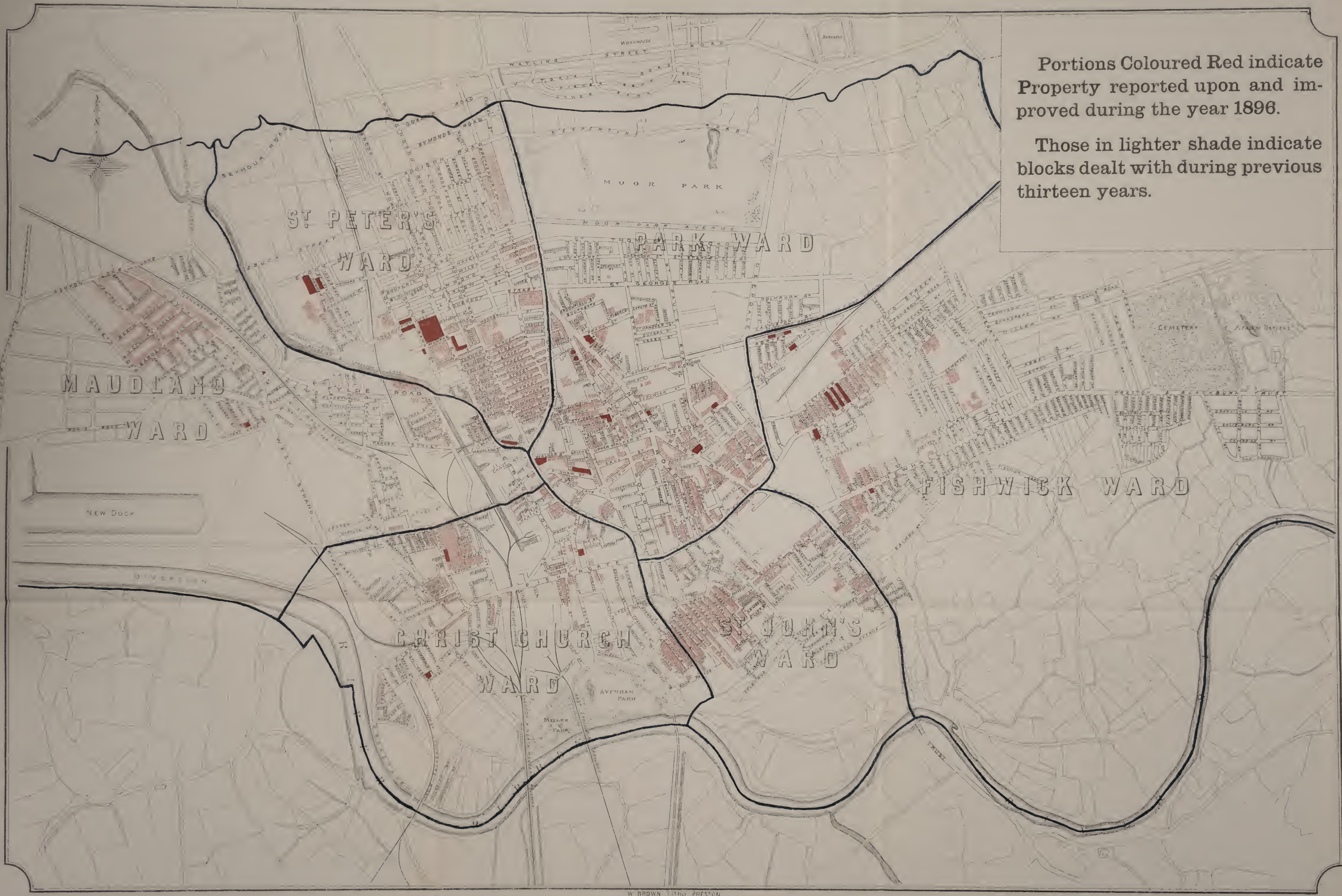
The subjoined numbers have also to be taken into account in judging of the above records of mortality.

Deaths occurring outside the district among persons belonging thereto.	151	5	1	1	3	70	71	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	4	...	...	...	2	6
								5 upwards	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	13	33	...	18	...	77	145
Deaths occurring within the district among persons not belonging thereto.	...	...	...	...	...	...	...	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
								5 upwards	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE No. 15.

TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS.

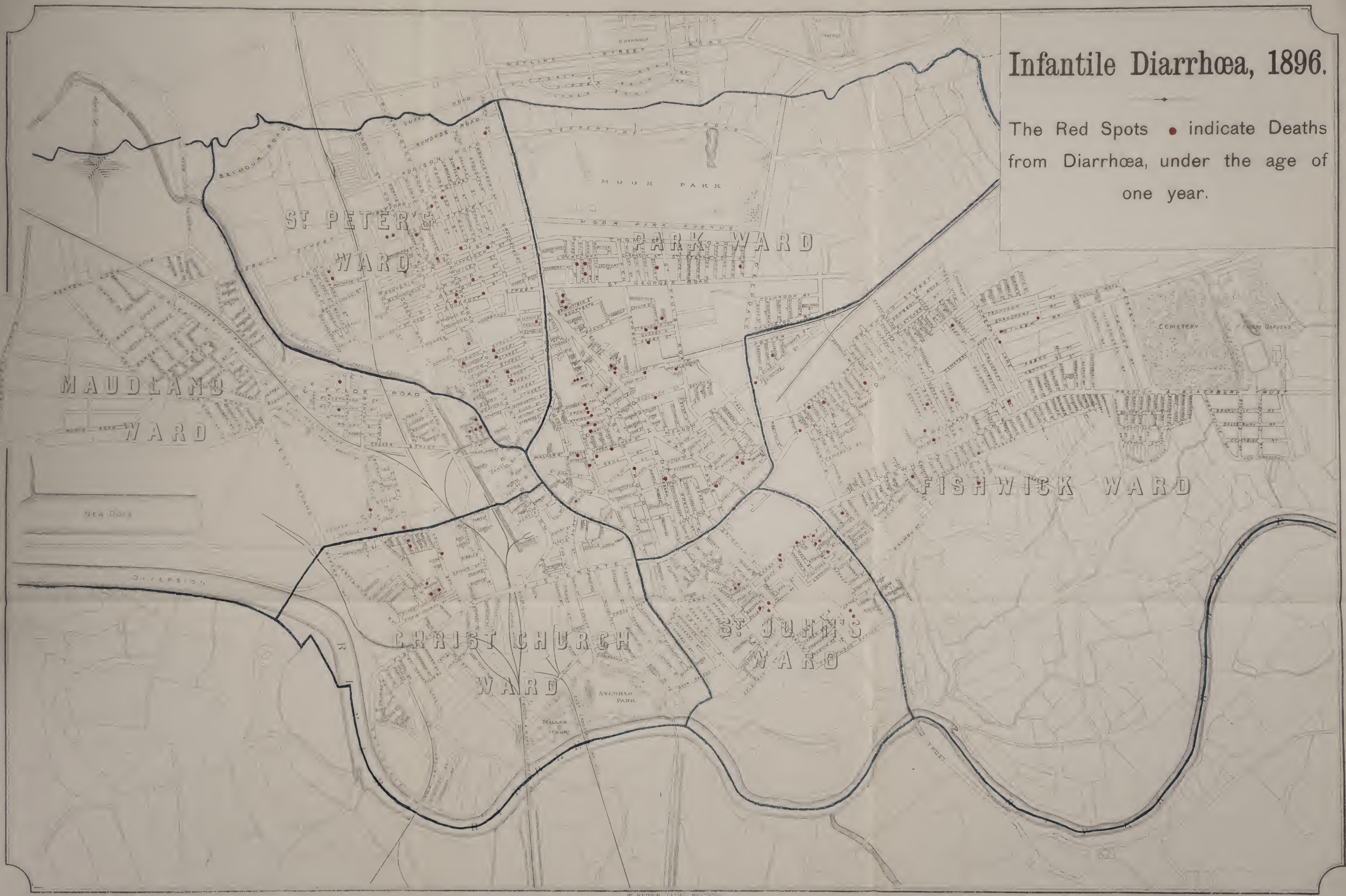
Names of Localities adopted for the purpose of these Statistics: public institutions being shown as separate localities. *(Columns for Population and Births are in Table B)* *(a)*	POPULATION AT ALL AGES		Registered Births. *(d)*	Aged under 5 or over 5. *(e)*	NEW CASES OF SICKNESS IN EACH LOCALITY COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.										
	Census 1891 *(b)*	Estimated to middle of 1896. *(c)*			Small Pox. *1*	Scarlatina *2*	Diphtheria *3*	Membranous Croup *4*	FEVERS.					Cholera *10*	Erysipelas *11*
									Typhus *5*	Enteric or Typhoid *6*	Continued *7*	Relapsing *8*	Puerperal *9*		
St. Peter's Ward.........	20,145	21,606	794	Under 5	...	2	6	...	...	3	...	...	...	...	3
				5 upwards	...	18	3	...	...	20	...	...	5	...	28
Park Ward	27,892	27,548	905	Under 5	...	8	5	...	...	3	...	...	...	...	1
				5 upwards	...	14	3	...	...	31	...	...	3	...	34
Fishwick Ward	19,782	23,597	798	Under 5	...	10	2	...	...	1	...	...	...	...	2
				5 upwards	...	20	3	...	...	30	...	...	4	...	23
St. John's Ward	13,582	13,426	413	Under 5	...	7	...	...	...	2	...	...	...	...	...
				5 upwards	...	5	3	...	...	11	...	...	1	...	9
Christ Church Ward ...	13,510	13,314	348	Under 5	...	6	4	...	...	1	...	...	...	...	2
				5 upwards	...	5	2	...	...	11	...	...	...	...	18
Maudland Ward	12,953	14,376	412	Under 5	...	3	...	...	...	...	...	...	...	...	2
				5 upwards	...	9	3	...	...	18	...	...	1	...	16
Gaol	...	...	3	Under 5	...	...	...	...	...	...	...	...	...	...	...
				5 upwards	...	...	...	...	...	...	...	...	...	...	...
St. Joseph's Hospital ...	...	...	...	Under 5	...	...	...	...	...	...	...	...	...	...	...
				5 upwards	...	...	...	...	...	...	...	...	...	...	...
Royal Infirmary	...	...	...	Under 5	...	...	...	...	...	...	...	...	...	...	...
				5 upwards	...	...	...	...	...	...	...	...	...	...	...
Total	107,864	113,864	3673	Under 5	...	36	17	...	...	10	...	...	...	...	10
				5 upwards	...	71	17	...	...	121	...	...	14	...	128



Portions Coloured Red indicate Property reported upon and improved during the year 1896.

Those in lighter shade indicate blocks dealt with during previous thirteen years.

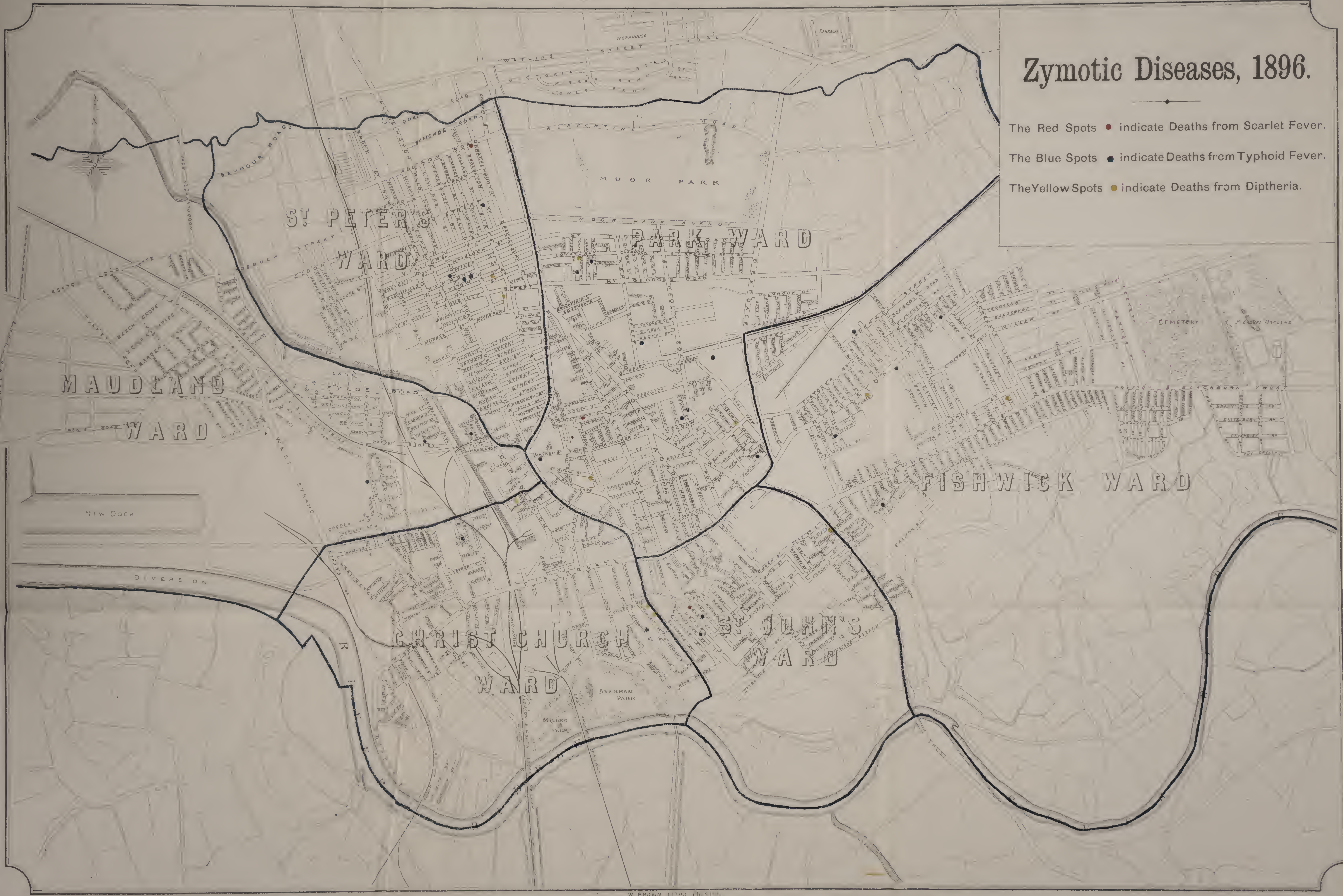
W. BROWN LITHO PRESTON



Infantile Diarrhœa, 1896.

The Red Spots ● indicate Deaths from Diarrhœa, under the age of one year.

W BROWN LITH. [illegible]



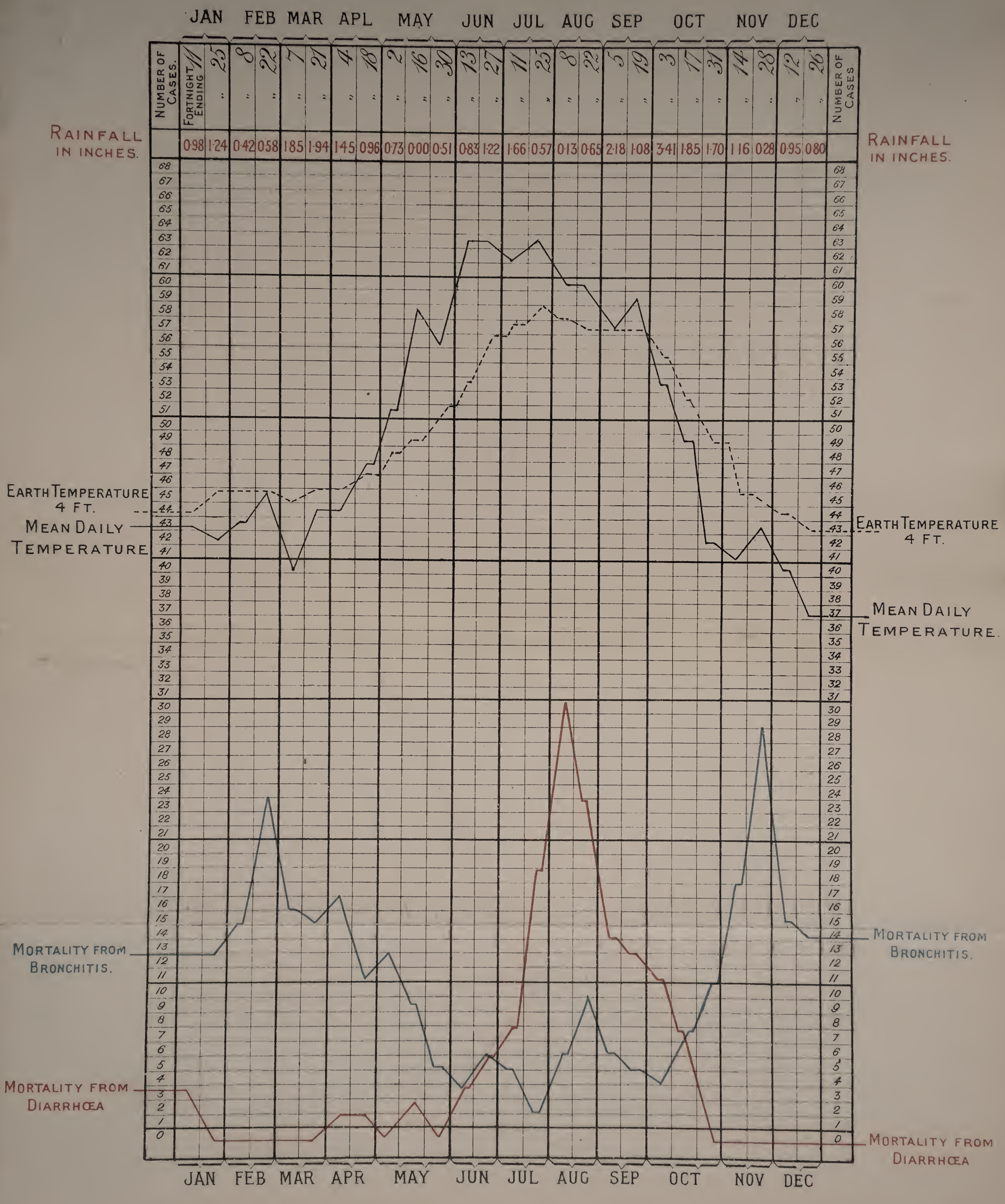
Zymotic Diseases, 1896.

The Red Spots ● indicate Deaths from Scarlet Fever.

The Blue Spots ● indicate Deaths from Typhoid Fever.

The Yellow Spots ● indicate Deaths from Diptheria.

W BROWN LITHO PRESTON


JAN FEB MAR APL MAY JUN JUL AUG SEP OCT NOV DEC
Number of Cases.
Fortnight Ending 11 25 8 22 7 21 4 18 2 16 30 13 27 11 25 8 22 5 19 3 17 31 14 28 12 26
Rainfall in inches.
0·98 1·24 0·42 0·58 1·85 1·94 1·45 0·96 0·73 0·00 0·51 0·83 1·22 1·66 0·57 0·13 0·65 2·18 1·08 3·41 1·85 1·70 1·16 0·28 0·95 0·80
Rainfall in inches.
Earth Temperature 4 ft.
Mean Daily Temperature
Earth Temperature 4 ft.
Mean Daily Temperature.
68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Mortality from Bronchitis.
Mortality from Bronchitis.
Mortality from Diarrhœa
Mortality from Diarrhœa
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

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